REMARKS

In the Office Action, the Examiner indicated that claims 1 through 33 are pending in the application and the Examiner rejected all claims.

Claim Rejections, 35 U.S.C. §103

In item 3 of the Office Action, the Examiner rejected claims 1-33 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,822,747 to Graefe et al. in view of U.S. Patent No. 6,086,619 to Hausman.

The Present Invention

The present invention allows different optimization problems to be solved with fewer iterations and improved response time. In a preferred embodiment, a predetermined number of anticipated optimization problems and calculations that are typically performed in solving them are pre-solved. Data associated with and derived from these calculations, e.g., anticipated input values, intermediate calculation values and optimal solutions to the anticipated problems, are stored in a database or the like. The prestored data in the database are used to reduce the processing time involved in obtaining optimal solution(s) to a current optimization problem to be solved.

U.S. Patent No. 5,822,747 to Graefe et al.

U.S. Patent No. 5,822,747 to Graefe et al. ("Graefe") teaches a system and method for optimizing a database query. The system consists of a search engine and a database implementor that determines an optimal plan for executing an SQL query. The SQL query is represented as a query tree consisting of a number of nested expressions. The search engine generates a number of plans from which an optimal plan is selected. Only after the optimal plan is selected are the optimization problems solved in Graefe et al. The Examiner acknowledges that Graefe fails to teach storage of a plurality of data groups whereby the data groups include optimal solutions to corresponding anticipated optimization problems, and solving a current optimization problem using the stored data groups.

U.S. Patent No. 6,086,619 to Hausman

U.S. Patent No. 6,086,619 to Hausman ("Hausman") teaches an apparatus and method for modeling optimization problems providing variable specification of both input and output in enhanced graph theoretic form. Problem elements including nodes and links may be defined, as may constraints on nodes and links and on groups of nodes and links, including proportional and required relationships between network elements and groups of network elements that are connected and unconnected. Data received in enhanced graph theoretic format are transformed into the form of an objective function, possibly including linear, bilinear, and quadratic terms, and a system of constraints, which are then solved using network program, linear program, or mixed integer linear program software.

The Examiner has not Established a *prima facie* Case of Obviousness

As set forth in the MPEP:

> To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference or to combine reference teachings.
> MPEP 2143

The Examiner has not met the requirements of a *prima facie* case of obviousness. As the Examiner acknowledges, Graefe fails to teach the pre-solution of optimal solutions to anticipated optimization problems and storage of these pre-solutions, and then use of these stored pre-solutions in solving a current optimization problem. Further, the applicant nowhere indicates any suggestion in Graefe to modify its disclosure to perform pre-calculations of any kind. Graefe is simply a system for optimizing database queries, as indicated by its title. Graefe finds optimal "routes," but does not speed up the process of traversing any of the routes.

Hausman is an apparatus and method for modeling linear and quadratic programs. Applicant does not deny that modeling of programs in this manner is well known; applicant does not claim to have invented this technology. However, nothing in Hausman suggests or teaches pre-solving anticipated optimization problems and storing the results of these pre-calculations so that they may be later used to speed up the process of solving a current optimization problem when needed. Without any such teaching or suggestion, it is inappropriate to reject the claims based on Graefe or Hausman, either alone or in combination.

Each of the independent claims herein (and thus all of the claims) include the limitation that optimal solutions for anticipated optimization problems are stored for use when solving a

current optimization problem, i.e., they are pre-calculated and pre-stored. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims under 35 U.S.C. §103.
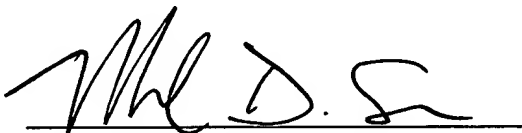
Conclusion

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

Enclosed herewith, in triplicate, is a Petition for extension of time to respond to the Examiner's Action. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment associated with this communication to Deposit Account No. 19-5425.

Respectfully submitted

August 5, 2004
Date

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